



## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference TS 1455 PCT	<b>FOR FURTHER ACTION</b> See Form PCT/PEA/416	
International application No. PCT/EP2004/053148	International filing date (day/month/year) 29.11.2004	Priority date (day/month/year) 28.11.2003
International Patent Classification (IPC) or national classification and IPC INV. C10J3/52 C10J3/48		
Applicant SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V.		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand  04.05.2005	Date of completion of this report  01.03.2006	
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tlx 31 651 epo nl Fax: +31 70 340 - 3016	Authorized officer  Lapeyrere, J  Telephone No. +31 70 340-2333  	

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/053148

---

**Box No. I Basis of the report**

---

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-12 as originally filed

**Claims, Numbers**

1-13 as originally filed

**Drawings, Sheets**

1/2-2/2 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/053148

---

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

---

**1. Statement**

Novelty (N)	Yes: Claims	2-4, 10-13
	No: Claims	1, 5-9
Inventive step (IS)	Yes: Claims	
	No: Claims	1-13
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

The following documents are referred to in this communication:

D1 : US 4 828 578

D2 : EP 0 318 071

**INDEPENDENT CLAIM 1**

- 1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document):

a spray ring (33), for wetting char and/or slag in a water bath with a wetting fluid, the spray ring (33) comprising a loop conduit (47) arranged in a loop-line, which loop conduit (47) is at an inlet point provided with an inlet (56) for feeding the wetting fluid into the loop conduit (47) in an inlet flow direction, and with a plurality of outlet openings (53) for spraying the wetting fluid out of the loop conduit, wherein the inlet flow direction has a component that is tangential to a loop-line flow direction of the wetting fluid through the loop conduit at the inlet point (column 5, lines 5 to 10).

In D1, the ring is designated as a quench ring (column 3, line 9) and has all the features of claim 1. It is therefore considered as suitable "for wetting char and/or slag in a water bath with a wetting fluid".

The subject-matter of claim 1 is therefore not new (Article 54(1) and (2) EPC).

**Dependent claims 5 to 13**

- 2 Dependent claims 5 to 9 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the EPC with respect to novelty, the reasons being as follows:
- 2.1 Concerning claim 5, document D1 discloses that "the loop conduit extends in a two-dimensional plane and the inlet opening are provided in the outer peripheral wall of the loop conduit" (see figure 2).
- 2.2 Concerning claim 6, document D1 discloses that the spray ring is provided with "a plurality of, preferably three or more, inlets in a plurality of inlet points, whereby the inlet

flow direction in each of the inlet points has a component that is tangential to the loop-line flow direction in each inlet point" (see figure 3).

- 2.3 Concerning claim 7, document D1 discloses that "the plurality of inlet points are equally distributed along the loop conduit" (see figure 3).
- 2.4 Concerning claim 8, document D1 discloses that "the included angle between the inlet flow direction and the loop-line flow in each inlet point is less than 80°" (see figure 3).
- 2.5 Concerning claim 9, document D1 discloses "a reactor vessel comprising a reaction area and, disposed gravitationally lower than the reaction area, a slag water bath for holding water and receiving char and/or slag from the reaction area, and a spray ring according to any one of claims 1 arranged above the water surface (see figure and column 2, line 52 to 53)."
- 3 Dependent claims 2 to 4 and 10 to 12 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(2) and (3) PCT) in particular in combination with document D2 since it is not possible to distinguish any technical effect.

### **INDEPENDENT CLAIM 13**

- 4 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 13 does not involve an inventive step in the sense of Article 33(3) PCT.

The document D1 is regarded as being the closest prior art to the subject-matter of claim 13, and discloses (the references in parentheses applying to this document):

method of wetting char and/or slag in a water bath with a wetting fluid, wherein a spray ring comprising a loop conduit arranged in a loop-line is provided gravitationally higher than the water bath, and wherein the wetting fluid is circulated through the spray ring along a loop-line flow direction by feeding the wetting fluid into the loop conduit in an inlet flow direction having a component that is tangential to the loop-line flow direction of the wetting fluid through the loop conduit, wherein at the same time the wetting fluid is sprayed out of the loop conduit onto the dip tube.

- 4.1 The subject-matter of claim 13 therefore differs from this known method in that "the wetting fluid is sprayed out of the loop conduit onto the char and/or slag in the water bath".

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/EP2004/053148

---

- 4.2 The solution proposed in claim 13 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons.
- 4.3 The difference is merely an alternative described in document D2 from which it is not possible to distinguish any technical effect. The skilled person would therefore regard it as a normal design option to include this feature in the method of wetting described in document D2 without any inventive activity.